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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,320	10/11/2005	Pascal Dumy	1383-PCT-US-02	4534

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EXAMINER	
KHANNA, HEMANT	
ART UNIT	**PAPER NUMBER**
1654	

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/528,320	DUMY ET AL.	
	Examiner	Art Unit	
	Hemant Khanna	1654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *36-68* is/are pending in the application.

4a) Of the above claim(s) *36-59, 63-65, 67-68* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *60-62, 66* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's election with traverse of claims 60-66 that belong to Group II in the reply filed on August 11, 2006 is acknowledged. The traversal is on the ground(s) that all of the claims and species fall within the unity of invention requirements of the PCT rule in as much as the common technical feature is the grafted homodetic cyclopeptide that is obtained by the method defined in claim 36, namely a grafted homodetic cyclopeptide particularly defining two faces which are both grafted and on which at least one molecule of interest is grafted via an oxime bond.

The restriction for Groups I-III is maintained. The applicant's arguments are not found persuasive. The determination of a common technical feature in a product is not determined by its method of production. Since the grafted homodetic cyclopeptide comprising the αvβ3 integrin inhibitor, cyclo (RGDfK), is not free of the art as set forth below, unity of invention is lacking.

The requirement is still deemed proper and is therefore made FINAL.

Claims 60-66 have been examined as being drawn to Group II. **Claims 36-59,** and **67-68** are withdrawn from consideration as belonging to Groups I and III.

Applicant's election of the species having a homodetic cyclopeptide with the guiding element c[RGDfK] on one face and a detection agent or cytotoxic biomolecule on the other face, embraced by claim 61-62 is acknowledged. Applicant's species is not found free of the art as set forth below.

Claims 63-65 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected species comprising to which the search of the Markush claim was not extended, there being no allowable generic or linking claim. Election was made **with** traverse in the reply filed on August 11, 2006.

Claim Objections

2. Claims 61-62 are objected to because of the following informalities: Applicant's have identified D-amino acids by "small letters". Applicant's are requested to specifically write the amino acid containing the D-amino acids to avoid any confusion. For example, for SEQ ID NO: 1, Applicant's are requested to write the sequence as cyclo(L-Arg-L-Gly-L-Asp-D-Phe-L-Lys); for SEQ ID NO:2 an appropriate recitation would be cyclo(L-Arg-L-Gly-L-Asp-D-Tyr-L-Lys). Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 60-62, 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scheibler L. et al. (Angew. Chem. Int. Ed. (1999) Vol. 38, pages 696-699) in view of Kantlehner M. et al. (Angew. Chem. Int. Ed. (1999) Vol. 38, pages 560-562) and Rajopadhye M. et al (WO 99/58162).

The claims are drawn to a grafted homodetic cyclopeptide, comprising peptide derived from cyclo(RGDfK) (SEQ ID NO:1) on one face and a detection agent on the other face.

Scheibler L. et al disclose regioselectively addressable functional templates (RAFT, right column, first paragraph, page 696), based on a homodetic cyclopeptide sequence c[(K(Boc)K(Boc)PGK(Alloc))$_2$] that features orthogonally protected attachment sites on opposite faces of the cycle which is used for the covalent attachment of an antigenic peptide sequence, an antigenic (NANP)$_3$ derivative on one face and for the self-assembly on to a gold surface on the other face (right column, second paragraph, page 696). Scheibler L. et al further disclose that the antigenic peptide ligated to RAFT demonstrated successful binding to a monoclonal antibody, directed against the NANP peptide (left column, first paragraph, page 697). Scheibler L.

et al. do not disclose SEQ ID NO: 1 on one face and a detection agent on the other face.

Kantlehner M. et al. disclose the grafting of the cyclopeptide c(-RGDfK-) (SEQ ID NO:1, left column, second paragraph, page 560) onto a graft material, poly(methyl methacrylate) (PMMA), to study the adhesion of the cyclic pentapeptide to the integrin receptor namely, αvβ3 expressed on osteoblast cultures (right column, second paragraph, page 560). Adhesion to the osteoblast cultures validated that RGD peptides which were either linear or cyclic but contained the D-amino acid in another location, did not possess the adhesion activity (right column, first paragraph, page 560).

Rajopadhye M. et al disclose αvβ3 binding pharmaceuticals, comprising SEQ ID NO: 1 namely, cyclo (Arg-Gly-Asp-D-Phe-Lys(DTPA-^{177}Lu; line 15, page 33) attached to a therapeutic detecting agent, namely, a radiopharmaceutical, and further comprising a linker, between the targeting moiety and the therapeutic radioisotope. Rajopadhye M. et al disclose that the pharmaceuticals of the present invention are synthesized in several approaches, one approach involving the attachment of the targeting moiety to the linking group which is then attached to one or more detecting agents (lines 25-30, page 68).

It would have been obvious to one of ordinary skill in the art to modify the homodetic cyclopeptide (RAFT) with the αvβ3 binding cyclopeptide comprising SEQ ID NO:1 as taught by Kantlehner M. et al and further modifying the RAFT-cyclopeptide with the targeting moiety comprising the radiopharmaceutical as taught by Rajopadhye M. et al. One would have been motivated to prepare a grafted homodetic cyclopeptide

in view of the teachings of Rajopadhye M. et al who teach that the interaction of the cyclic peptide with its receptor αvβ3 will result in the localization of the pharmaceutical in the angiogenic tumor vasculature (lines 15-20, page 68). There would have been a reasonable expectation of success in view of the teachings of Scheibler L. et al who successfully demonstrate that the derivatization of a RAFT template with a peptide does not alter the antigenic properties of the peptide and further in view of the teachings of Kantlehner M. et al who teach that the grafting of the cyclopeptide does not alter its adhesion properties to the αvβ3 receptor.

Conclusion

5. No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hemant Khanna whose telephone number is (571) 272-9045. The examiner can normally be reached on Monday through Friday, 7:30 am-4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang can be reached on (571) 272-0562. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hemant Khanna Ph. D.
September 21, 2006

9/26/06
ANISH GUPTA
PRIMARY EXAMINER